



Using Limited Health Care Dollars Wisely

What States Can Do To Create The Health System They Want

New Orleans, Louisiana

June 22-23, 2007



This meeting was made possible through generous support by project, G96MC04444, from the Maternal and Child Health Bureau (Title V, Social Security Act), Health Resources and Services Administration, U.S. Department of Health and Human Services.

Early Childhood Development: Economic Development with a High Public Return



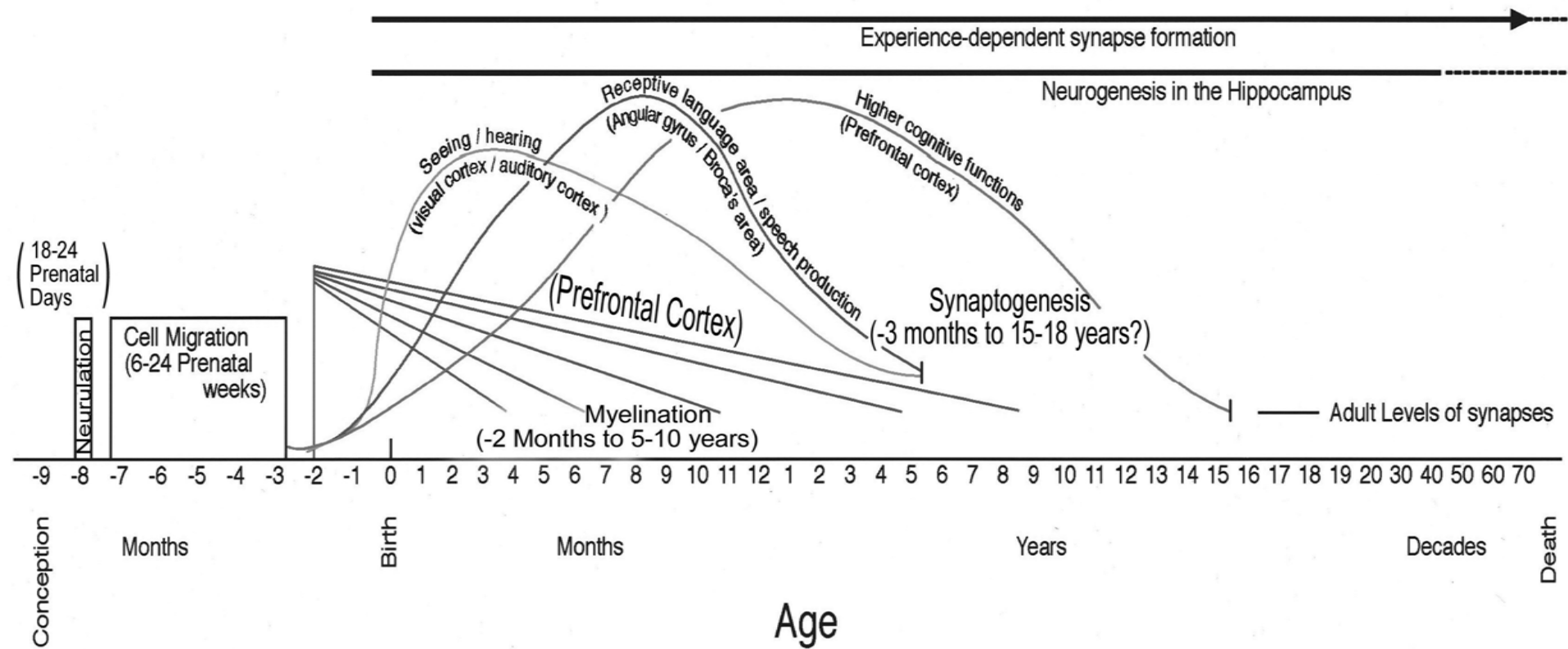
Rob Grunewald and Art Rolnick
Federal Reserve Bank of Minneapolis

Key Economic Concepts

- **Human capital development and economic growth**
 - Prenatal to age 5 is optimal time to invest
- **Cost-benefit analysis**
 - Early investments yield high public returns

Early Brain Development

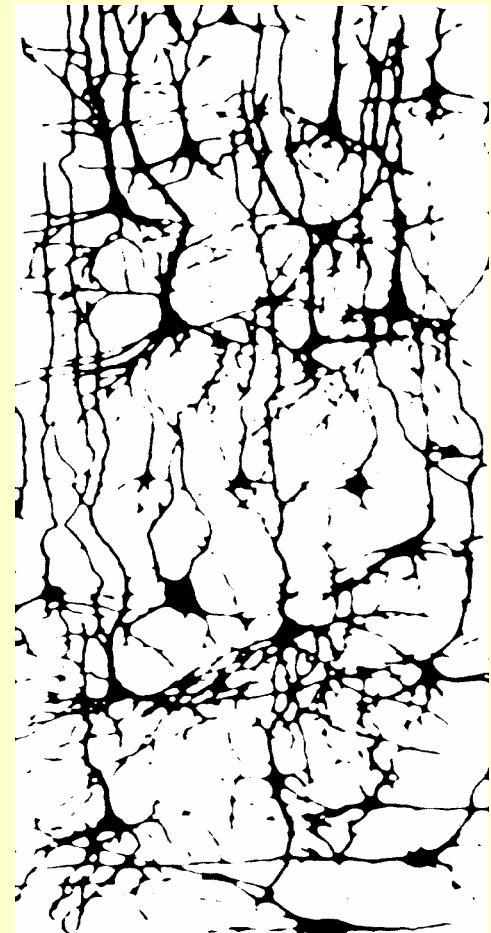
- **More than 85% of brain's architecture is formed by ages 3 to 4.**
- **Environmental stimuli switch on genetic pathways and affect formation of connections (synapses) among billions of neurons.**



Human
Brain
at Birth

6 Years
Old

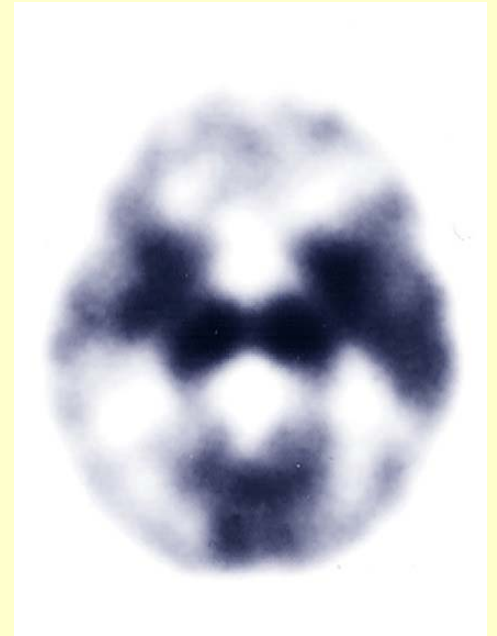
14 Years
Old



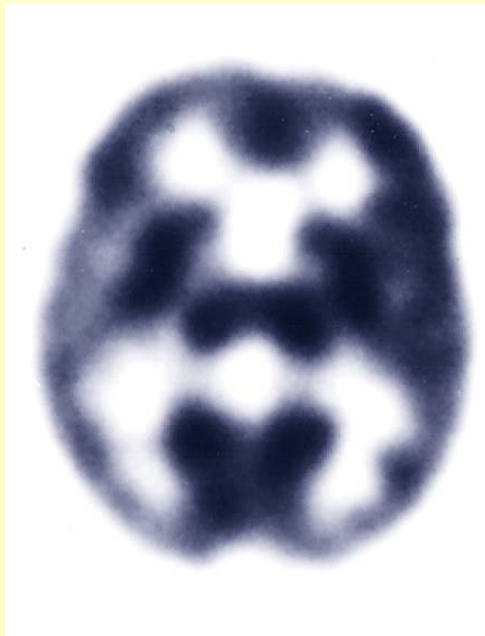
5 Days



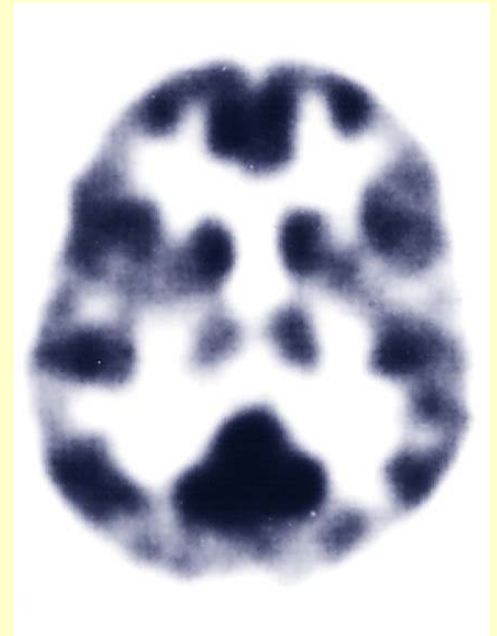
2
Months



1 Year



28 Years



Effects of Toxic Stress During Early Childhood

Mental Health:

- **Depression**
- **Anxiety disorders**
- **Alcoholism**
- **Drug abuse**
- **Learning & Memory**

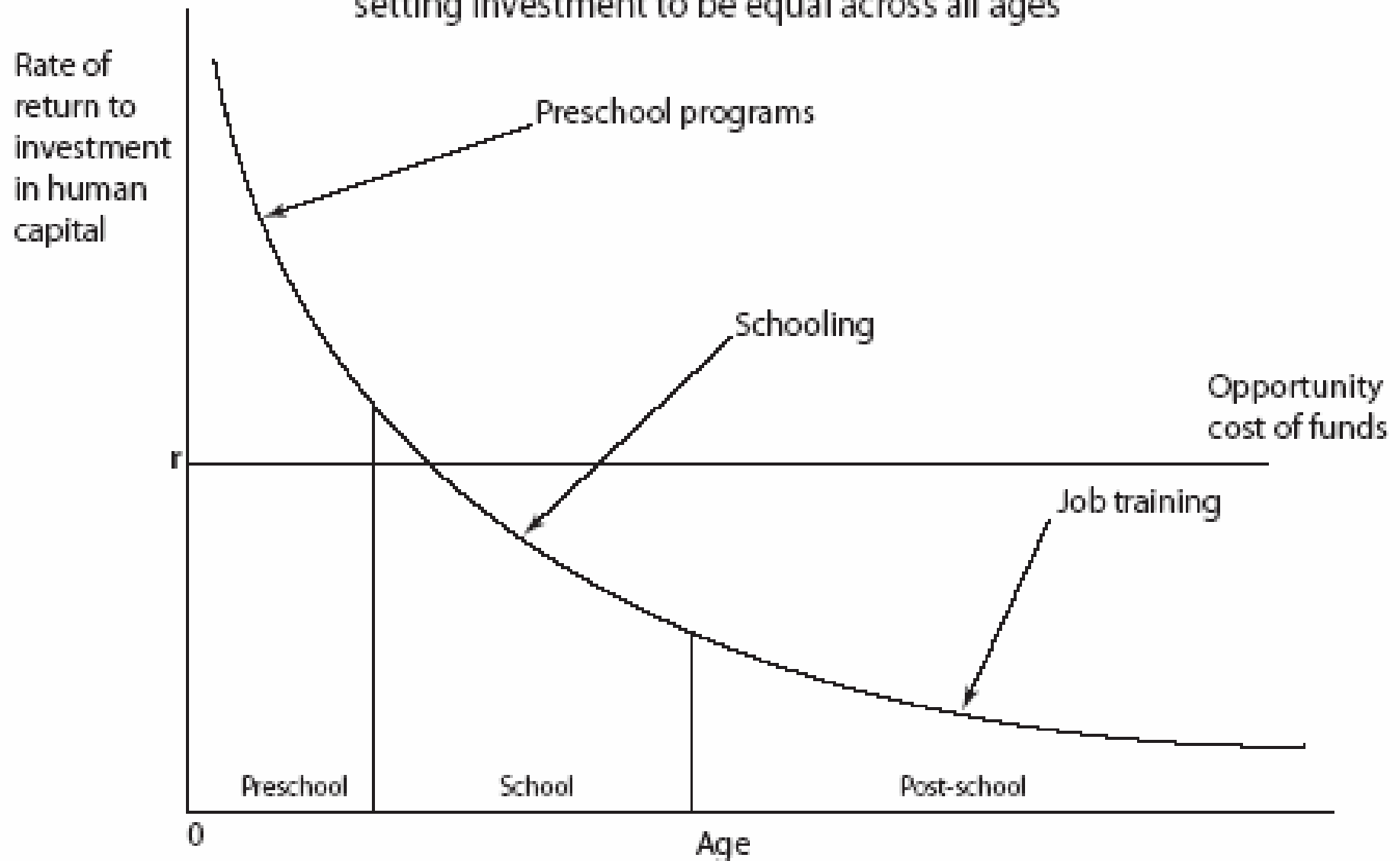
Physical Health:

- **Cardiovascular disease**
- **Diabetes**
- **Stroke**

*Source: National Scientific
Council on the Developing Child⁸*

Figure 7

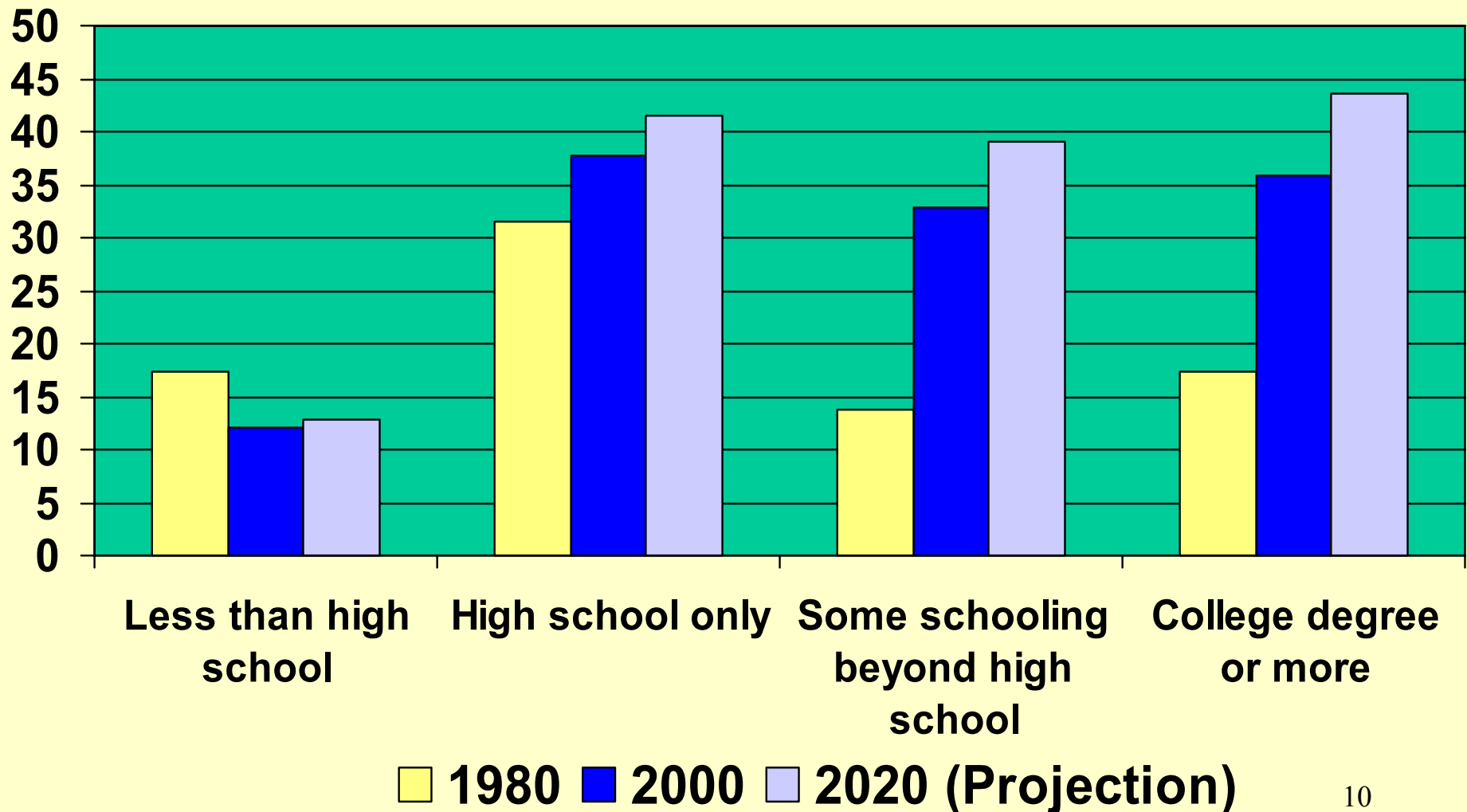
Rates of return to human capital investment initially
setting investment to be equal across all ages



Rates of return to human capital investment initially setting investment to be equal across all ages

Educational Characteristics of the Labor Force

Millions of Workers Age 25 and Over



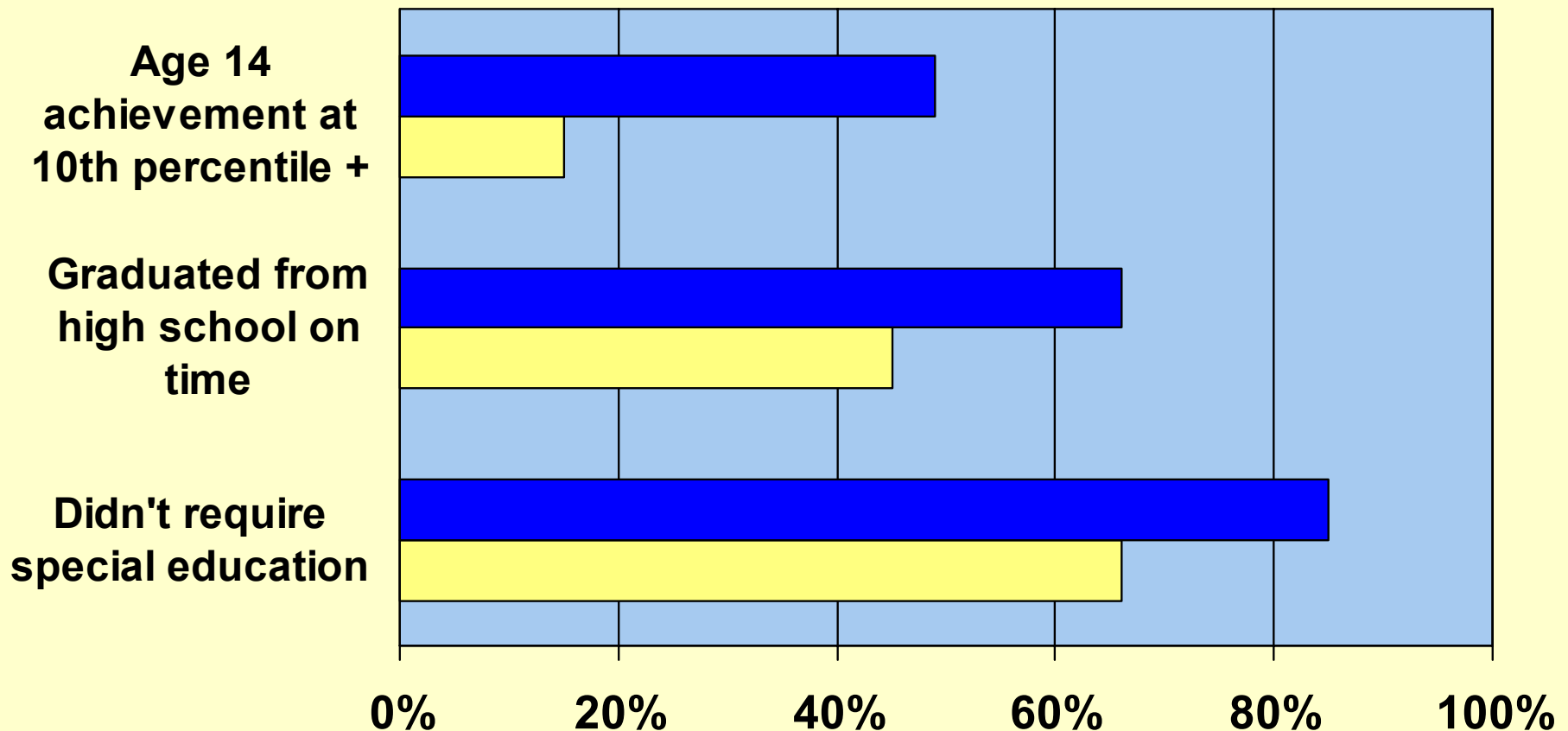
Source: Ellwood (2001)

High/Scope Study of Perry Preschool

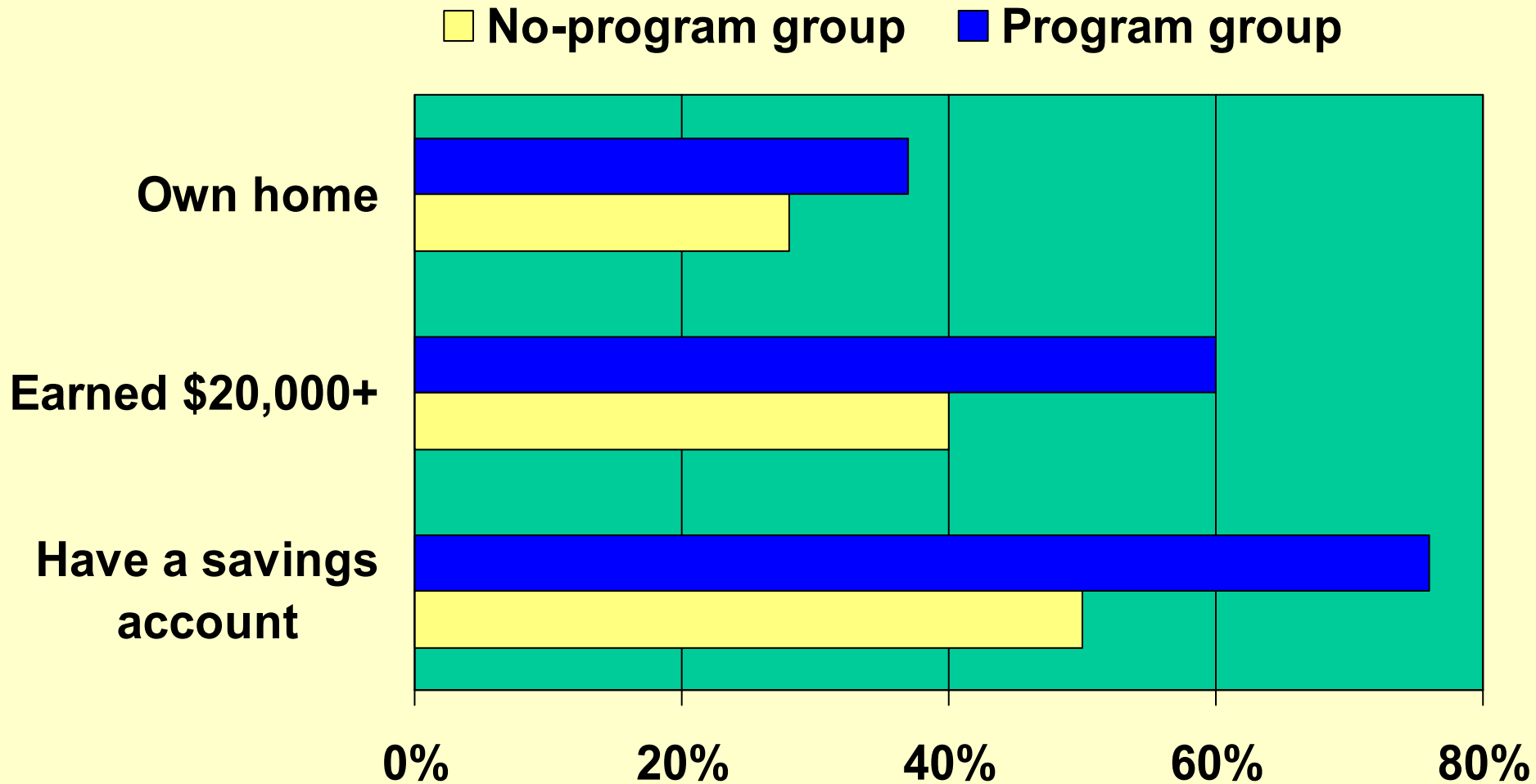
- **In early 1960s, 123 children from low-income families in Ypsilanti, Mich.**
- **Children randomly selected to attend Perry or control group.**
- **High-quality program with well trained teachers, daily classroom sessions and weekly home visits.**
- **Tracked participants and control group through age 40.**

Perry: Educational Effects

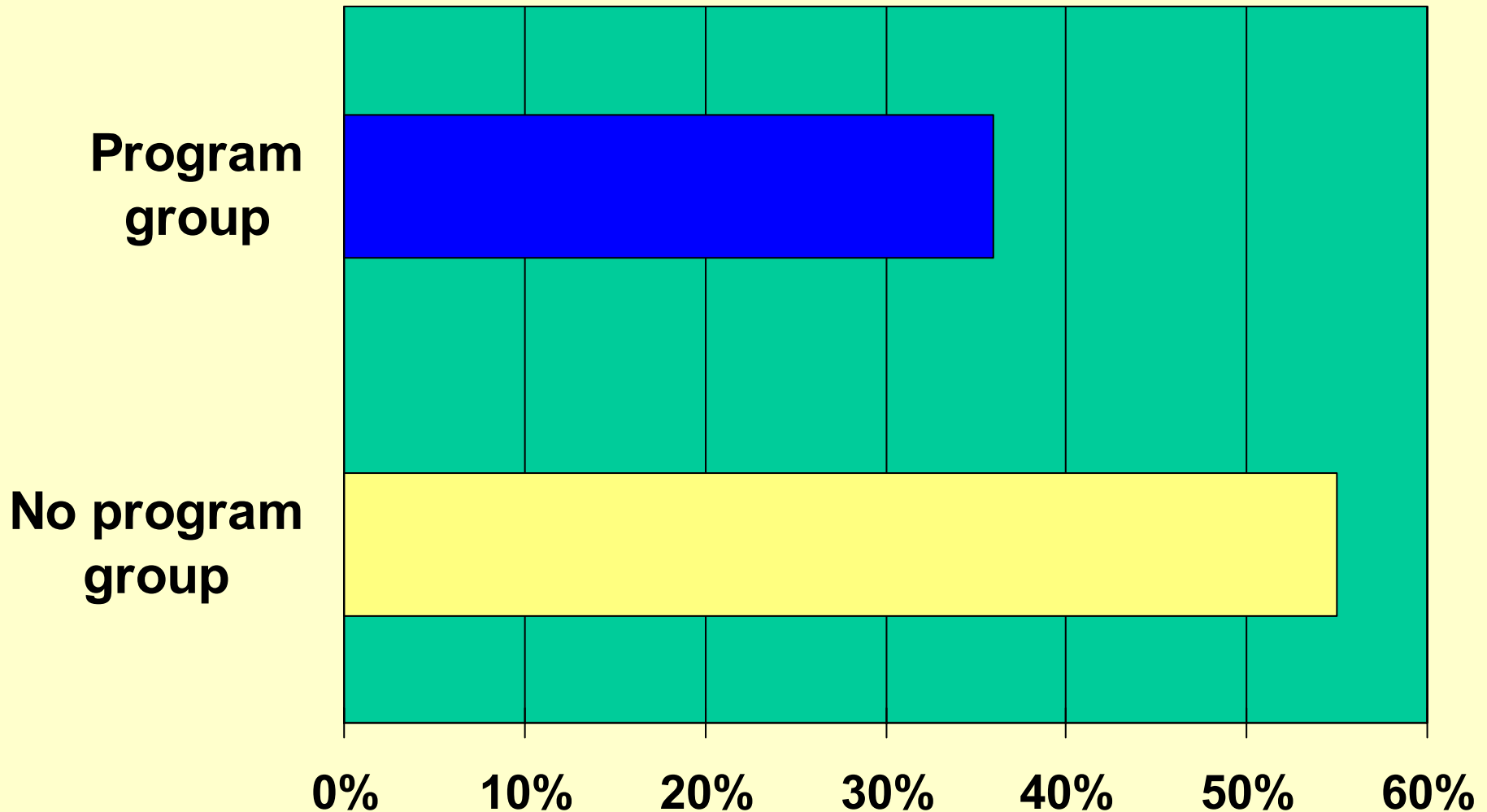
□ No-program group ■ Program group



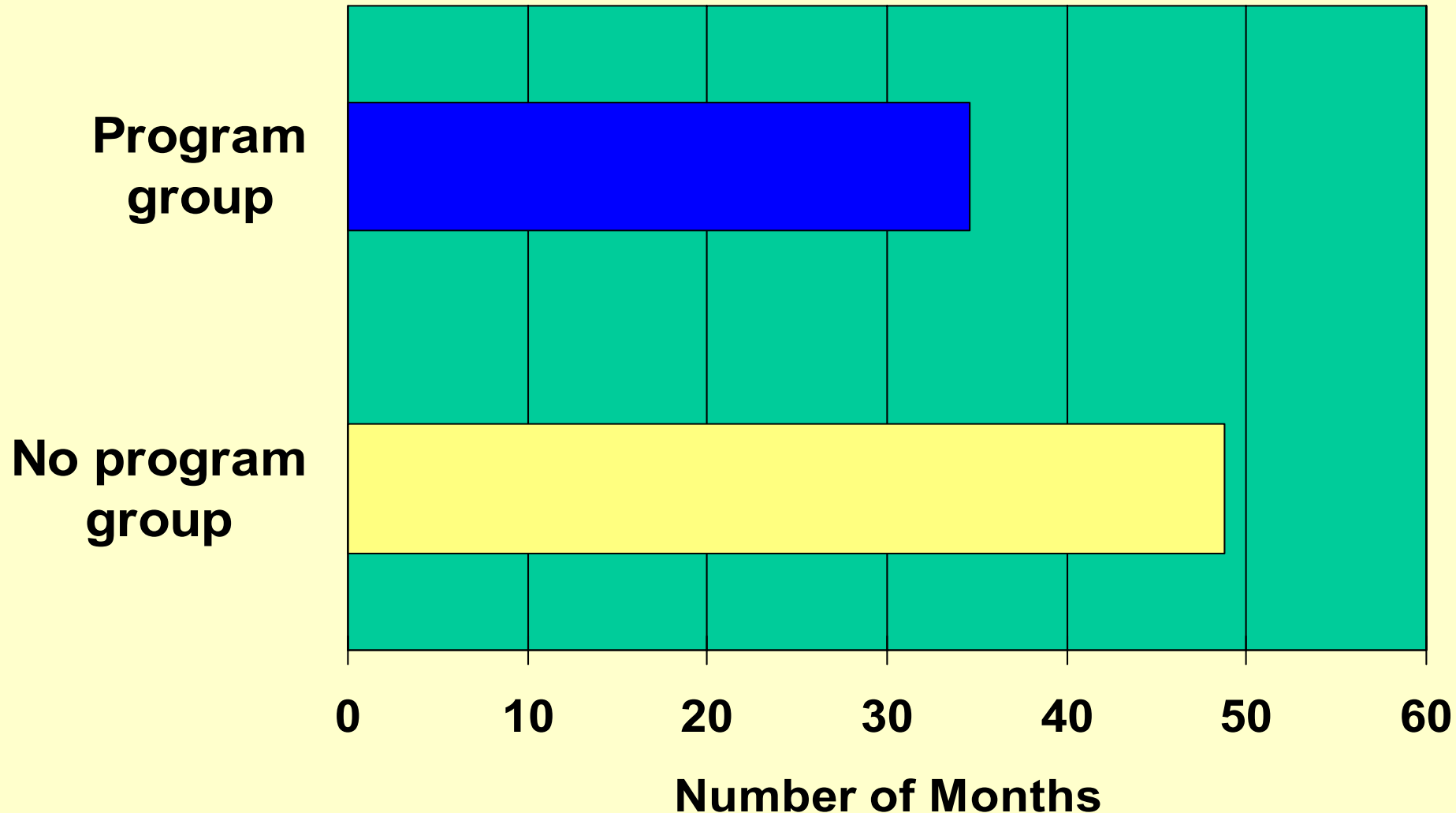
Perry: Economic Effects at Age 40



Perry: Arrested 5 or More Times Before Age 40

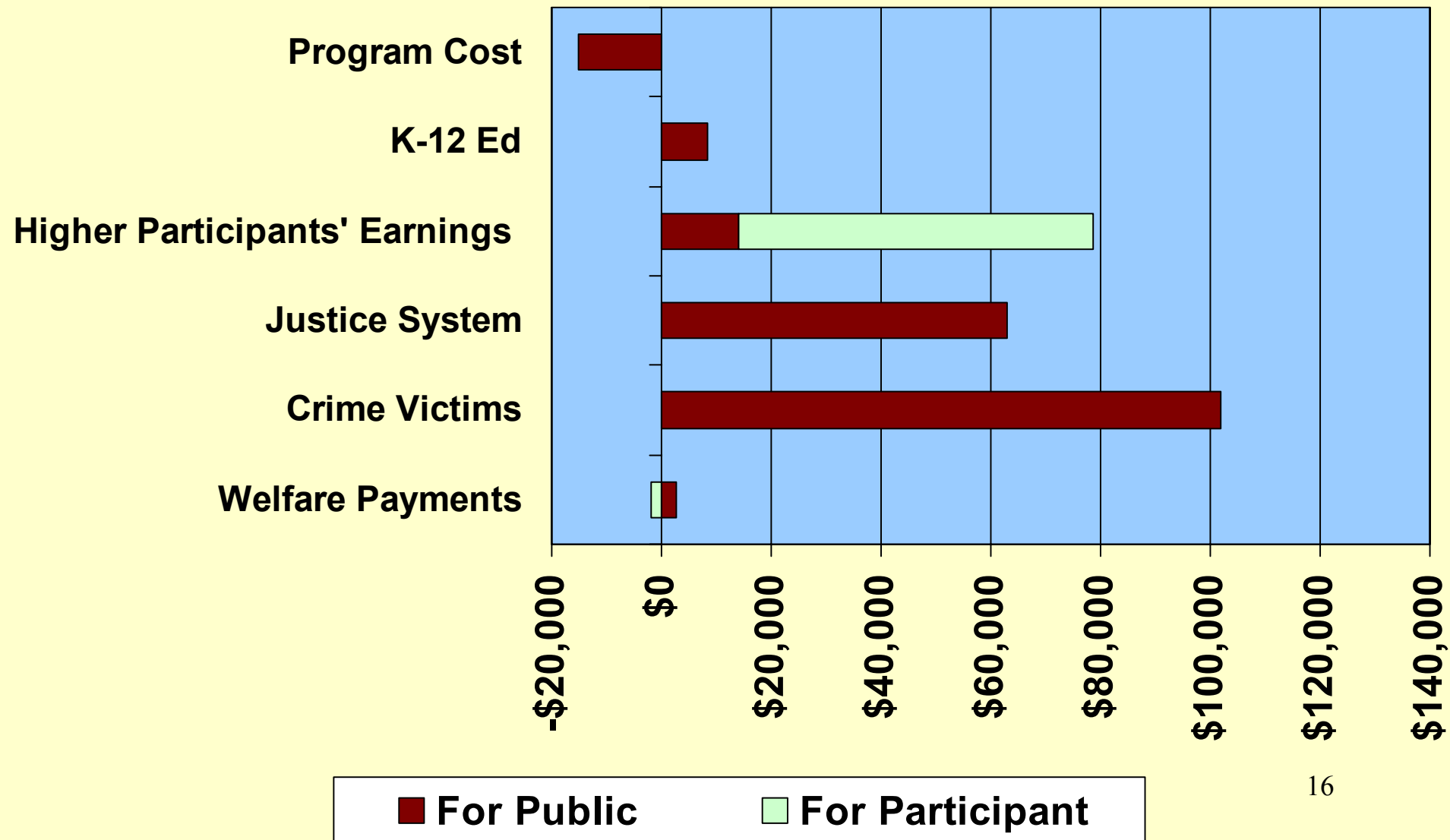


Perry: Average Number of Months Served in Prison by Age 40



Perry Preschool

Costs and Benefits Over 62 Years



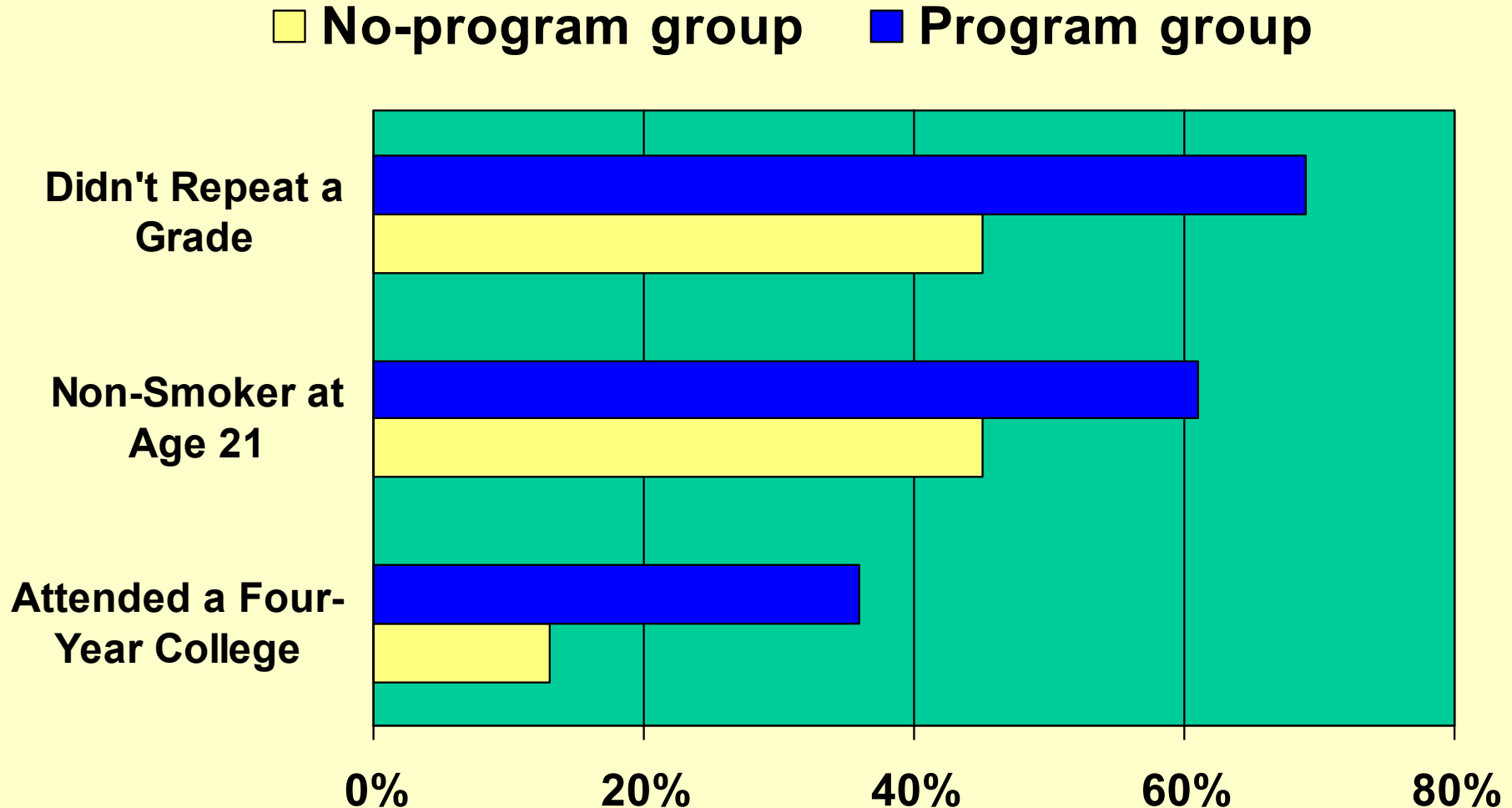
Perry Preschool — Estimated Return on Investment

- **Benefit-Cost Ratio = \$17 to \$1**
- **Annual Rate of Return = 18%**
- **Public Rate of Return = 16%**

Abecedarian, Educational Child Care

Full-day, year-round program near Chapel Hill, N.C. Children from low-income families were randomly selected to attend Abecedarian or control group.

Abecedarian: Educational and Health Effects



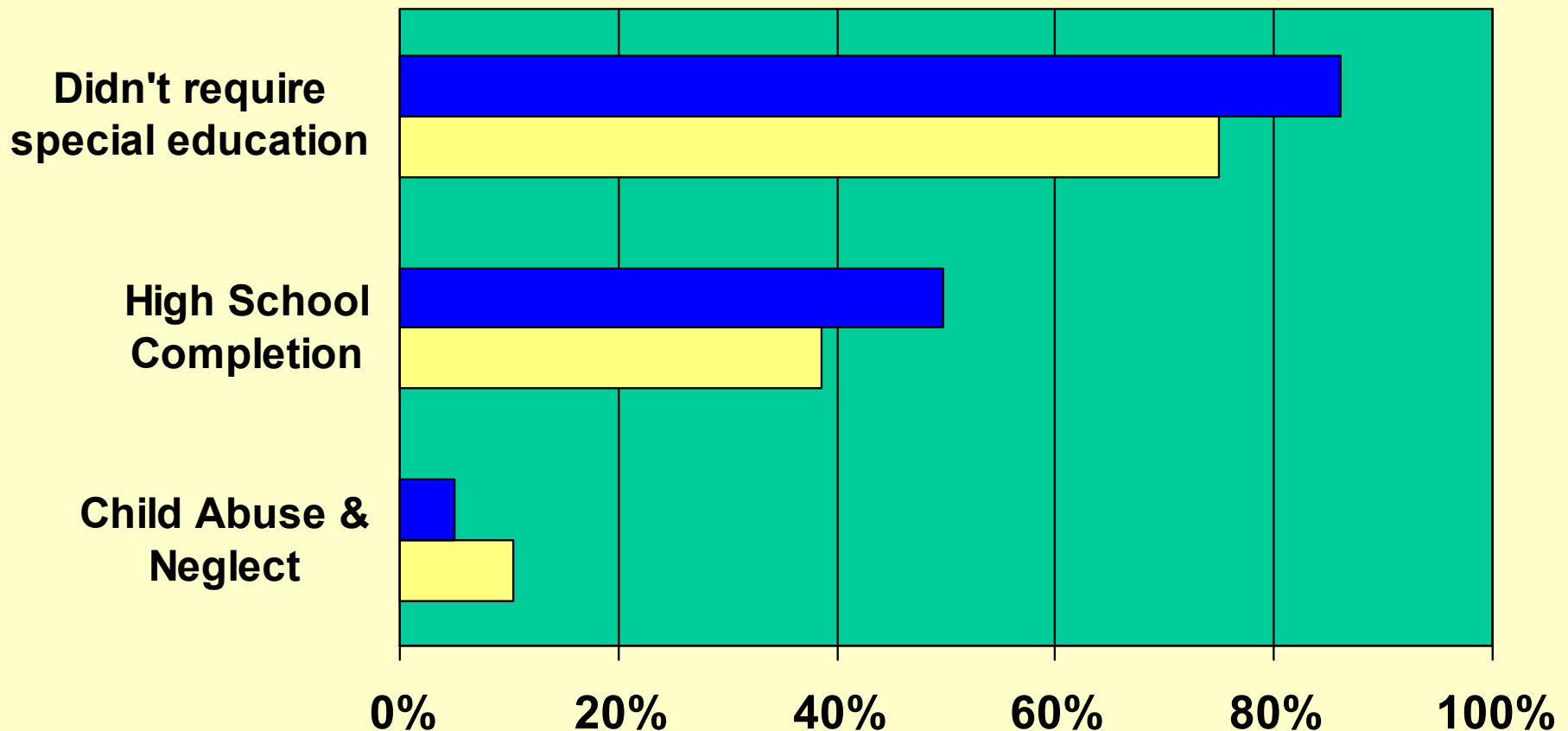
Source: Carolina Abecedarian Study

Chicago Child-Parent Centers

Half-day, large-scale program in Chicago public schools. Comparison group was a random sample of eligible nonparticipants.

Chicago Child-Parent Centers

■ No-program group ■ Program group



Source: Arthur Reynolds, et al.

Nurse-Family Partnership

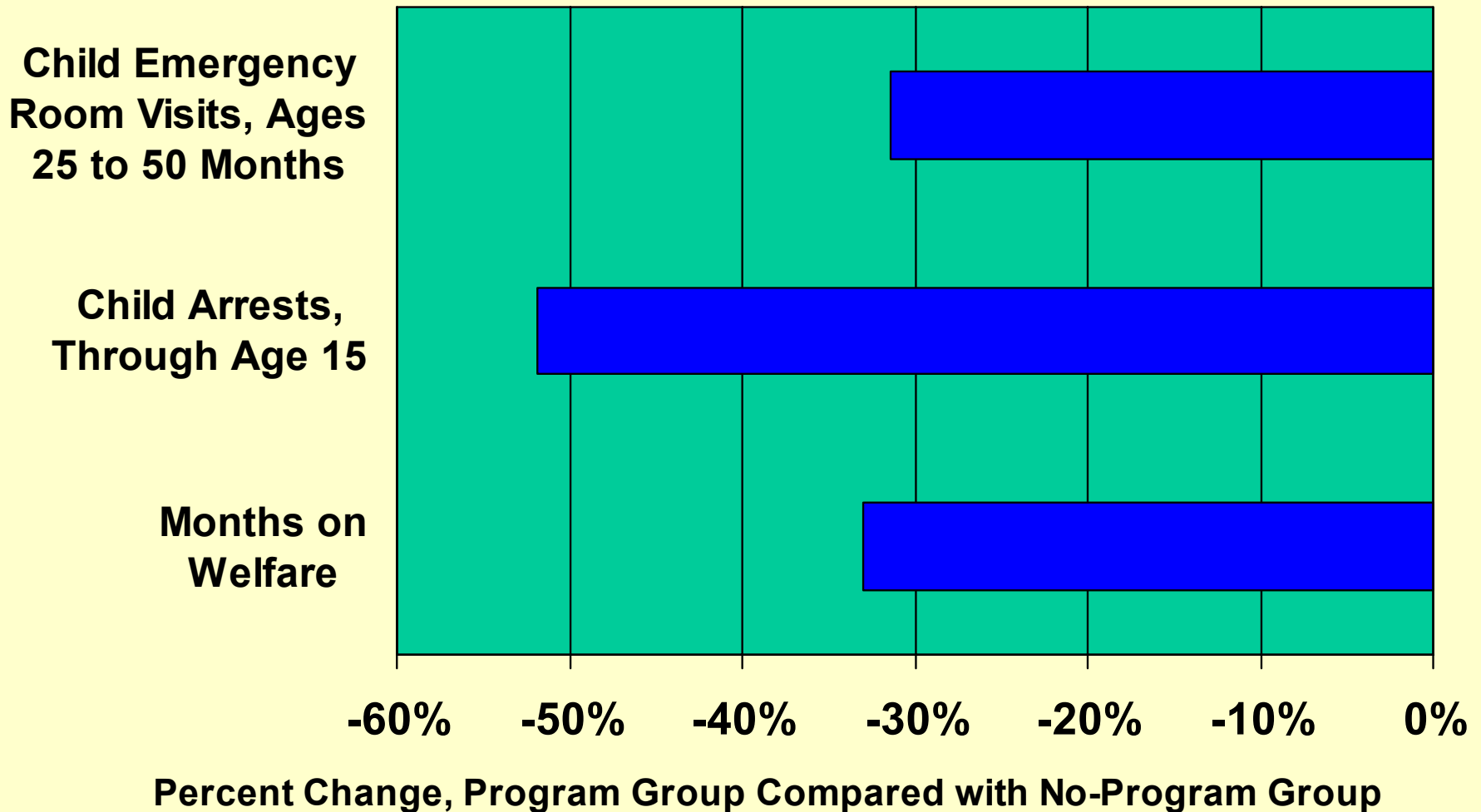
Home visiting program by registered nurses for at-risk mothers, prenatal through first two years of child's life. Randomly selected participants were compared with a control group in three locations.

- *Elmira, NY (1977), low-income whites, semi-rural*
- *Memphis, TN (1987), low-income blacks, urban*
- *Denver, CO (1994), low-income mixed population, largely Hispanic*

Effects Found in Two or More Trials

- Improved prenatal health
- Fewer subsequent pregnancies
- Increased intervals between births
- Fewer childhood injuries
- Improved school readiness
- Increased maternal employment

Elmira Prenatal/Early Infancy Project High-Risk Families



Source: David Olds, et al.

Benefit-Cost Ratios for Other Longitudinal Studies

- **Abecedarian Educational Child Care**
 - \$4 to \$1
- **Chicago-Child Parent**
 - \$7 to \$1
- **Elmira Prenatal/Early Infancy Project**
 - \$5 to \$1

Lessons Learned from Research

- **Invest in quality**
- **Reach at-risk population**
- **Address cognitive and noncognitive aspects**
- **Bring to scale**

Moving Forward

Broad-based measures

- **Family-friendly work environments**
- **Early childhood screening**
- **Incentives to improve child care quality**

Moving Forward

For children at risk

- **Prenatal/early infant home visits for at-risk mothers**
- **Connect child protection system with early childhood intervention programs**
- **Provide scholarships for at-risk children to attend high-quality ECD program**

Business Leadership

- **Invest in Kids Working Group – Committee for Economic Development**
- **Success By 6 – United Way**
- **PNC Financial Services, Gates Foundation**
- **Minnesota Business for Early Learning**

minneapolisfed.org